

REMARKS

Reconsideration of the above identified application is respectfully requested.

A drawing amendment is attached hereto to resolve the objection made by the examiner.

Accordingly, withdrawal of the drawing objection is warranted and is requested.

The specification has been amended at paras. 33 & 47 to correct spelling errors.

Claims 1 & 11 have been amended to correct similar spelling errors, and to further distinguish over the applied reference as addressed below.

Claims 2 & 13 have been similarly amended to broaden the claims to conform with the specification, at paras. 33 & 46 for example, in view of the examiner's already broad interpretation of the claims features.

Claim 10 has been amended to conform with the syntax of claims 5, 6, and 8.

Applicants traverse the rejection of claims 1-3, 11-17, and 24-26 under Section 102(b) over Doughty et al.

Applicants note the substantial breadth of interpretation of Applicants' claims being proffered by the examiner, which correspondingly enlarges claim scope in later infringement analysis of the file wrapper. However, the examiner has failed to afford due weight to specific features and cooperation of features which distinguish over the applied art.

The fundamental error in the examiner's rejection of these several claims is the cursory recapitulation presented in para. 5 of the office action of the disparate features of the Doughty reference without regard to corresponding features in corresponding claims in a one-to-one correspondence.

Fundamental to independent claims 1 and 11 being

rejected by the examiner is the recitation therein of independent cooling circuits in combination with multiple cascade channels 46 separated by corresponding perforate partitions 48 having impingement holes 50 for effecting cascade impingement cooling.

Notwithstanding the examiner's attempt to list "cascade channels (70,41A,40,41B,72,60,62)" in Doughty, this references lacks any analogous structure and function for effecting cascade impingement cooling.

This failure of Doughty is readily appreciated by examining the different circuits therein one by one.

The forward circuit in Doughty includes channel 41A which feeds air through the single set of apertures 74 into plenum 70. There are no multiple cascade channels and corresponding perforate partitions in this circuit, and the examiner has not shown otherwise.

The aft circuit in Doughty includes the channel 41B which feeds air through the single set of apertures 74 into plenum 72. There are no multiple cascade channels and corresponding perforate partitions in this circuit, and the examiner has not shown otherwise.

And, the middle serpentine circuit 36 in Doughty includes successive channels 40A,40B,40C having imperforate ribs 34, with channel 40B feeding channel 60 through impingement apertures 50, and channel 40C feeding channel 62 through more impingement apertures 50, but in parallel with channel 60.

Although apertures 50 provide impingement cooling through the two pressure-side channels 60,62, that impingement cooling is effected in parallel flow, and not in the cascade configuration recited in independent claims 1 and 11.

There is no analogous cascade configuration disclosed in Doughty, and the examiner's grouping together of different features from different circuits in Doughty fails to support

the rejection.

As for the dependent claims also being rejected by the examiner, the errors in applying Doughty merely compound since Doughty fails to disclose, or suggest, any analogous cascade configuration of the flow channels therein, or the improved function and performance of such cascade circuits as recited in Applicants' claims and disclosed in the specification.

Claims 2, 12, and 13 introduce the imperforate partitions 52 and separation of the inlet channels in combination with the cascade impingement channels lacking in Doughty.

Claims 3 & 14 recite impingement holes 50 for each of the inlet channels in combination with the cascade impingement channel having no counterpart in Doughty. As indicated above, each of the three circuits in Doughty has a single-stage aperture row that does not provide cascade impingement in any manner relevant to the claims.

Claims 3 & 15 recite that the cascade channels are in series along either the pressure or suction sidewalls, which is overlooked in the examiner's generalization.

Note the single row of apertures 74 in rib 71 extending on both sides of the airfoil; the single row of apertures 74 in rib 75 on both sides of the airfoil; and the single rows of apertures 50 in walls 52 and 54, and in parallel, not series flow, and on both sides of the airfoil.

The examiner has cited no evidence in Doughty for his contention of "in series," nor has explained any broad interpretation of "in series" that could somehow be relevant to these claims. And, the examiner has overlooked the "either" recitation.

The examiner's recapitulation of claim 16 fails to afford any weight to the recited cascade channels, when a single row of apertures 74 is found between channels 41A & 70 in Doughty.

The examiner has overlooked claim 17 which recites two cascade circuits, yet Doughty fails to disclose even one cascade circuit.

The examiner has overlooked claims 24 and 25 reciting imperforate sidewalls, when Doughty is silent in the combination thereof with cascade impingement channels.

And, the examiner has also overlooked claim 26 which recites a serpentine channel in combination with the cascade impingement circuit, clearly lacking in Doughty.

Accordingly, withdrawal of the rejection of claims 1-3, 11-17, and 24-26 under Section 102(b) over Doughty et al is warranted and is requested.

In view of the examiner's exceptionally broad interpretation of the claims and the applied reference, Applicants have chosen to additionally amend independent claims 1 and 11 to recite that the cascade channels are successive to emphasize the significance of the cascade performance thereof as disclosed at paras. 33 and 34, for example.

At best, Doughty merely discloses single-stage use of air holes having no relevance to successive stages of cascade impingement cooling features.

For this additional reason, the rejection of record should be withdrawn.

Applicants note the objection to claim 7, but the rewriting thereof is not warranted.

Applicants also note the apparent rejection of claims 4-6, 8-10, 19-23, 27, and 28 in para. 7 of the office action. However, the examiner has failed to provide any reference to reject these claims, thus rendering this rejection without merit.

The examiner's use of "parallel" as presented in paras. 5 & 7 of the office action fails to afford due weight to that feature. Parallel as used in the application is to be interpreted in accordance with the corresponding description

thereof for parallel flow in the different circuits, as distinguishable from series flow.

Parallel and series flow are mutually exclusive features having the meaning thereof when read in light of the specification by one skilled in the art, and are not limited by physical space orientation as the examiner's contentions would appear to indicate.

In accordance with the duty imposed by 37 CFR 1.104 and MPEP sections 707, 707.05, 707.07, and 707.07(g), the examiner is requested to reconsider all the art of record, including the additional references not applied, to ensure full compliance with the required thoroughness of examination.

In re Portola Packaging, Inc., 42 USPQ2d 1295 (Fed. Cir. 1997) emphasizes the importance of complying with this duty to ensure that all references of record have been fully considered by the examiner in the various combinations thereof. And, the Board of Appeals has further elaborated on the importance of this examiner duty in Ex parte Schricker, 56 USPQ2d 1723 (B.P.A.I. 2000).

In view of the above remarks, allowance of all claims 1-28 over the art of record is warranted and is requested.

Respectfully submitted,



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Date: 4 October 2005

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Attachment: Drawing Amendment